

cioles, and the large size and small number of the coronal plates in both areas, both on the actinal and abactinal sides of the test, also show the structural affinities in the direction of the Ananchytidæ and Galeritidæ.

It is remarkable that it is among the Dysasteridæ¹ to which the Pourtalesidæ are in many respects most closely allied, that we also find a very great diversity in the outline of the test; many species of the Collyritidæ, such as *Dysaster calceolatus*, resemble closely our recent *Echinocrepis*; others, like *Collyrites jaccardi*, Des., remind us of *Urechinus*. On the other hand such genera as *Archiacia*, *Infulaster*, *Grasia*, and *Metaporhinus*, among the extinct genera, show quite as great diversity in shape as we find between *Pourtalesia*, *Cystechinus* and *Spatagocystis* among the deep-sea types of Pourtalesidæ.

It is interesting to note the general character of the pedicellariæ. Among the numerous genera of Pourtalesidæ there is no group of Echinids in which we find so many different kinds, and their structure like that of the spines and of the different parts of the test points to the most varied systematic affinities. We find among these the large-headed pedicellariæ (Pl. XLV. fig. 48) of *Pourtalesia* (Pl. XLV. figs. 28, 36), of *Cystechinus*, of *Spatagocystis* (Pl. XLV. fig. 39), of *Genicopatagus* (Pl. XLV. fig. 21), the type of Spatangoid pedicellariæ which most closely resembles that of the large-headed pedicellariæ of the Echinidæ and Echinometradæ.

We next find the Spatangoid type (Pl. XLV. figs 20, 20') which in this group seems frequently modified to assume the more Echinid-like type, of which *Pseudoboletia* is an example (Pl. XLIV. fig. 38), of having one or two large hooks terminating the more or less narrow prong of the valves as in *Pourtalesia* (Pl. XLV. figs. 46, 47, 49, 56, 57, 58). Or else we have the extremity of the valves varying from the Spatangoid type in becoming more or less cup-shaped (Pl. XLV. fig. 41) with strong serrations (Pl. XLV. fig. 43, *Echinocrepis*) approaching somewhat the regular crescentic serrations so characteristic of the Clypeastroids, and which is still more markedly Clypeastroid in *Aceste* (Pl. XLIV. fig. 47). In *Cystechinus*, and specially in *Pourtalesia* proper, these Clypeastroid like pedicellariæ are very characteristic of the type and indicative of one of the most interesting of the affinities of this Spatangoid group of Echinids, an affinity fully borne out by a comparison of other structural features. It is specially interesting to note in this connection that in *Echinolampas* (Pl. XLIII. figs. 3, 4; Pl. XLV. figs. 41, 43) these Clypeastroid like pedicellariæ also occur.

Pourtalesia.

Pourtalesia, A. Agassiz, 1869, Bull. Mus. Comp. Zool., vol. i.

In the genus *Pourtalesia* proper, as I have retained it here, there are two groups of species readily distinguished from the character of the test; these I was at first inclined

¹ The spines of the Dysasteridæ, which have been figured by Ooster and De Loriol, are similar to those of the Pourtalesidæ.